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Let $y_1 = vx_1$, then $dy_1 = vdx_1 + x_1dv$, and then

$$vx_1(vdx_1 + x_1dv) + (bx_1 + d \cdot x_1)dx_1 = 0,$$

or

$$v(vdx_1 + x_1dv) + (bv + d)dx_1 = 0, \quad (7)$$

i. e.,

$$(v^2 + bv + d)dx_1 + vx_1dv = 0,$$

or

$$\frac{v dv}{v^2 + bv + d} = -\frac{dx_1}{x_1}, \quad (7')$$

or

$$\frac{\frac{1}{2}(2v + b) - \frac{1}{2}b}{v^2 + bv + d} = -\frac{dx_1}{x_1}.$$

Hence,

$$\log (v^2 + bx + d)x_1^2 - b \int \frac{dv}{v^2 + bv + d} = k. \quad (8)$$

Evaluating the indefinite integral and substituting the values of v^2 and v , we obtain a solution for y in terms of x .

NOTES AND NEWS.

EDITED BY W. D. CAIRNS.

MR. JOHN BRANDEBERRY, A.B., Mt. Union College, 1914, and Miss MARVEL C. HORN, A.B., Ohio State University, 1914, have been elected graduate assistants in mathematics at Ohio State University, for the present academic year.

MR. RAYMOND DU HADWAY, who has been studying at Göttingen the past year was forced to leave Germany on account of the war. He has taken a place to teach mathematics in Washington University, St. Louis, Mo.

PROFESSORS PIERRE BOUTROUX and J. H. M. WEDDERBURN, of the department of mathematics, Princeton University, have been granted leaves of absence; the former is enrolled in the French service, the latter in the British service.

At the University of Texas, Dr. DAVID F. BARROW has been appointed instructor in applied mathematics, and Mr. F. A. LA MOTTE instructor in pure mathematics. The new courses being given are: The calculus of variations, by Mr. ETTLINGER; and the mathematics of investment and life insurance, by Professor DODD.

It was proposed to hold the next meeting of the International Commission on the Teaching of Mathematics at Munich, Germany, August 2-5, 1915; but this meeting has been indefinitely postponed on account of the war. The main sub-

ject for discussion was to have been the preparation, theoretic and practical, of teachers of mathematics for the various grades. At the request of the Central Committee Professor Gino Loria, Genoa, Italy, has assumed general charge of the work relative to teachers of secondary mathematics.

According to the list of members published in the July, 1914, issue of the *Revista de la Sociedad Matemática Española*, the number of members of the Spanish Mathematical Society is now 436. Three of these members live in the United States.

The October, 1914, number of the *Journal of the Indian Mathematical Society* contains an article by PHILIP E. B. JOURDAIN entitled "The Theories of Irrational Numbers, Part I." According to the author's own words "the aim of this historical and critical study is somewhat different from that of the other works known to us which deal with the development of the theory of convergence and allied topics. We shall, in fact, be concerned primarily with questions of principle."

The National Academy of Sciences began in January, 1914, the publication of a monthly periodical called *Proceedings*. Professor E. H. MOORE, of the University of Chicago, is the mathematical member on the editorial staff. Professor E. B. WILSON, Massachusetts Institute of Technology, is the managing editor. The articles are expected to be short and to exhibit a summary of the most important results obtained by Americans in various fields of science.

Professor E. W. HOBSON gave six lectures at Cambridge University during the Easter term of last year on the history of the problem of the quadrature of the circle. These lectures have been published by the Cambridge University Press in a book entitled "Squaring the Circle. A History of the Problem." The price of the book is three shillings.

A London press dispatch says that "King George has approved the presentation by the council of The Royal Society of a royal gold medal to Professor ERNEST W. BROWN of Yale University for his investigations in astronomy."

WILLIAM FROTHINGHAM BRADBURY, author of textbooks on algebra, geometry, and trigonometry, died in Boston on October 22, 1914, at the age of 86 years. From 1886 to 1910 he was headmaster of the Boston Latin School.

MICHAEL A. MCGINNIS, who was the author of a book in which he claimed (falsely, of course) to have devised a universal solution for both numerical and literal equations, died recently in Kansas City. It is claimed by many who knew him intimately that, but for strong drink and dishonest business methods, he might have made a noteworthy record as a mathematician.

J. M. GREENWOOD, who, for many years and to the time of his death late last autumn, was superintendent of schools in Kansas City, Mo., was an ardent friend of the MONTHLY, having been a regular subscriber for a long period. He was a lover of mathematics for its own sake, spending many of his spare hours not only in mathematical recreations but in genuine mathematical study. For years he had been chairman of the appropriations committee of the National Education Association, where he always showed a keen appreciation of all investigations which had to do with improvement of mathematical teaching, one of his liberal recommendations being for the appropriation of funds to finance the work of the National Committee of Fifteen on Geometry Syllabus.

Professor GIOVAN BATTISTA GUCCIA, of the University of Palermo, died on October 29, 1914. He was the founder of the Circolo Matematico di Palermo and editor of its official publication the *Rendiconti*.

The Division of Mathematics of Harvard University announces that hereafter two appointments will be made each year to the Benjamin Peirce Instructorships in mathematics, which carry a stipend of \$1,000 to \$1,200 and allow the incumbents to pursue courses for higher degrees while giving instruction to the extent of about ten and one half hours per week. These instructors may be reappointed but not for more than three years.

"The Training of Mathematics Teachers" is the title of a paper read by Professor G. A. MILLER at the 1914 meeting of the Central Association of Science and Mathematics Teachers. The paper appears in the January, 1915, issue of *School Science and Mathematics*. A review of this stimulating address, together with a report of other features of this meeting will appear in a later issue of the MONTHLY.

Miss OLIVE C. HAZLETT, a graduate student at the University of Chicago, is the author of an article on "Invariantive characterization of some linear associative algebras" which appeared in the *Annals of Mathematics* for September, 1914.

Dr. THOMAS E. MASON, who took his doctorate at Indiana University last year, is instructor in mathematics at Purdue University. His thesis, entitled "Character of the solution of certain functional equations," was published in the *American Journal of Mathematics* for October, 1914.

Professor G. A. MILLER, of the University of Illinois, published an article in *The Popular Science Monthly* for November, 1914, which the readers of the AMERICAN MATHEMATICAL MONTHLY will be glad to see. It is entitled "Recent mathematical activities." It is an excellent résumé of matters with which everyone interested in mathematics should be familiar.

"The Uses for Mathematics" is the title of an article in *Science* of November 13, 1914, by Professor S. G. BARTON of Flower Observatory, University of Pennsyl-

vania, in which the great debt of the sciences to mathematics is dwelt upon. A list is given of 104 titles from the last edition of the *Encyclopedia Britannica* the treatment of which requires the infinitesimal calculus. The article closes with the following quotation from Sir John Herschel:

“Admission to its sanctuary (the sanctuary of astronomy) and to the privileges and feelings of a votary is only to be gained by one means—sound and sufficient knowledge of mathematics, the great instrument of all exact inquiry, without which no man can ever make such advances in this or in any other of the higher departments of science as can entitle him to form an independent opinion on any subject of discussion within their range.”

The Association of Mathematics Teachers of New Jersey is a new organization which held its first meeting November 7, 1914, with an attendance of about sixty. While composed chiefly of high-school teachers the organization is not to be conducted, we understand, so largely along so-called “normal” lines as has been the case in many instances, but rather the *common* interests of high school and college mathematics are to be conserved and the programs are to contain more papers dealing with subject matter of at least as high a grade as the calculus. To this end, besides several papers of the usual type, two of the newer type were given at this initial meeting, namely: on “Number and the Quadratic” by Professor RICHARD MORRIS of Rutgers College, and on “The Mechanics of Aviation” by Professor L. P. EISENHART of Princeton University. These papers were reported as admirably well adapted to the end desired and the resulting effect seemed most satisfactory. This is a step along a line similar to that undertaken by the California teachers as reported in this issue of the MONTHLY. We commend the California reading course to the New Jersey association. A moving spirit in this organization is HARRISON E. WEBB, of the Central High School, Newark, N. J.

The winter meetings of the American Mathematical Society held in Chicago on December 28, 29, 1914, and in New York on January 1, 2, 1915, were among the most enthusiastic and largely attended in many years. At Chicago there were sixty-one members present and twenty-two papers read. At New York there were ninety-five members present and thirty-two papers were read. At each meeting a dinner was held on the evening of the first day and thus opportunity was offered for social intercourse which was enjoyed to the full. These meetings have grown to be most inspiring occasions and are well worth the effort and expense of even long journeys in order to attend them. The attendance in New York was the largest ever recorded at a meeting of the Society, and the ten or more members from the West who helped to swell this number were amply repaid in the coin of friendly greeting, extended acquaintance, and mutual fellowship. The next Summer meeting of the Society will be in San Francisco early in August.